5.700 TEMPORARY RULE ON SOUND LEVELS FROM WIND GENERATION FACILITIES

5.701 Purpose and Applicability

This temporary rule establishes standards and procedures related to sound emissions from wind generation facilities that apply for a certificate of public good ("CPG") pursuant to 30 V.S.A. § 248 on or after June 13, 2016.

5.702 Definitions

(A) Board: the Vermont Public Service Board.
(B) Department: the Vermont Department of Public Service.
(C) Plant capacity: pursuant to 30 V.S.A. § 8002, "plant capacity" means the rated electrical nameplate for a wind generation facility.
(D) Residence: a permanent structure for human habitation that is occupied by one or more people for a minimum of 90 days each year.
(E) Turbine shut-down method: a sound monitoring method used to determine background sound levels by having all turbines that have a measureable effect on sound levels at a specific monitor location cease operation for a specified period of time.
(F) dBA: A-weighted decibel.
(G) L90: Sound level exceeded during 90% of a measurement period.
(H) Wind generation facility: a wind-driven electric generation facility for which a petition for a CPG pursuant to 30 V.S.A. § 248 is submitted to the Board on or after June 13, 2016.
(I) CPG holder: a person or company who has received a CPG pursuant to 30 V.S.A. § 248 for a wind generation facility.

5.703 General Rule

Until a final rule establishing sound standards related to the operation of wind generation facilities is adopted, no wind generation facility approved for operation shall emit sound levels in excess of the following:

(A) Facilities with a plant capacity of 500 kilowatts or less. Operation of facilities with a plant capacity of 500 kilowatts ("kW") or less shall not result in: (1) audible prominent discrete-frequency tones pursuant to the latest revision of ANSI standard S12.9 Part 4 Annex C at any residence; and (2) sound pressure levels in excess of 10 dBA above L90 ambient level at the exterior of any residence, or 45 dBA when measured at the exterior of any residence, whichever is less. The measurement time interval shall be established on a case-by-case basis as part of the Board's review of an application for a CPG. In no instance shall the measurement time interval exceed one hour.

(B) Facilities with a plant capacity of greater than 500 kW. Operation of facilities with a plant capacity of greater than 500 kW shall not result in: (1) audible prominent discrete-frequency tones pursuant to the latest revision of ANSI standard S12.9 Part 4 Annex C at any residence; and (2) sound pressure levels in excess of 45 dBA at the

exterior of any residence or 30 dBA in an interior bedroom. The measurement time interval shall be established on a case-by-case basis as part of the Board's review of an application for a CPG. In no instance shall the measurement time interval exceed one hour. For purposes of determining the interior sound pressure levels specified under this section, residences shall be presumed to have their windows open during the months of May, June, July, August, and September, shall be presumed to have their windows partially open during the months of April and October, and shall be presumed to have windows closed during the remaining months.

(C) The Board shall evaluate appropriate sound standards for proposed wind generation facilities on a case-by-case basis, and may impose lower sound pressure levels, or different measurement metrics, as appropriate, based on the evidence presented as part of the Board's review of an application for a CPG.

5.704 Pre-Construction Sound Modeling

All petitions to construct and operate a wind generation facility, except for those for a wind generation facility with a capacity of 50 kW or less, shall include a sound model developed for the proposed facility that reports the expected maximum sound levels experienced within a specified radius from the nearest turbine. For facilities with capacities larger than 50 kW and equal to or less than 500 kW, the radius shall be one mile. For facilities with capacities larger than 500 kW, the radius shall be three miles.

(A) Turbine specifications as the basis of sound model. The sound model shall be based on the technical specifications of the turbines proposed for use at the facility.

(B) Other Inputs to Sound Model. The sound model shall be based on the most conservative set of inputs and assumptions appropriate for the facility and shall include information identifying the inputs and assumptions related to:

(1) Uncertainty of sound power from the facility;
(2) Ground absorption of sound; and
(3) Topographic and geographic features unique to the facility, including bodies of water.

(C) Obligation to update and supplement sound model. A CPG Holder shall update, supplement, and/or amend the sound model due to any and all changes to the facility prior to operation. An opportunity to review and comment on any change to the sound model shall be given to all parties to the 30 V.S.A. § 248 proceeding who have standing on the issue of sound. The CPG Holder must receive Board approval of any changes to the sound model prior to commencing site preparation or construction of the facility.

5.705 Post-Construction Sound Monitoring

For a wind generation facility with a plant capacity greater than 500 kW, sound monitoring shall take place in accordance with the requirements of the CPG, which shall specify the minimum number of residences to be monitored, the radius from the nearest facility turbine

in which monitoring locations may be selected, and the time period of monitoring. The monitoring is intended to verify the accuracy of the pre-construction modeling and facility compliance with CPG conditions and requirements. At its discretion, the Board may require additional monitoring based on the results of the initial post-construction sound monitoring or as a result of changes to the facility or its operation.

(A) Monitoring by the State. Post-construction sound monitoring shall be conducted under the direct supervision and control of a State of Vermont agency or agencies designated by the Board. The post-construction sound monitoring shall be paid for by the CPG Holder.

(B) Monitoring methodology. Post-construction sound monitoring shall conform to the requirements contained in Rule 5.706.

(C) Modification of pre-construction sound model. A CPG Holder is required to identify the appropriate inputs and/or assumptions, and modify the pre-construction sound model if the post-construction sound monitoring indicates that there is a reasonable likelihood that the expected maximum sound levels at any of the monitoring locations are equal to or greater than 3 dBA above those modeled. All parties to the 30 V.S.A. § 248 proceeding who have standing on the issue of sound shall be given an opportunity to review and comment on any change to the sound model.

(D) Alternatives to residential monitor locations. A CPG Holder may seek a waiver from the minimum residence monitoring location requirement if sufficient residential locations cannot be secured to conduct sound monitoring. A request for waiver shall include a description of why the CPG Holder is unable to meet the minimum residence requirement, and the efforts it has taken to meet the requirement. The request for waiver shall also include a description of the proposed alternative monitoring location(s).

5.706 Sound Monitoring Methodology

Sound monitoring equipment and procedures shall conform to all applicable relevant industry standards and specifications. Sound monitoring shall include periods when at least 90% of the facility's wind turbines are expected to be operating at their maximum sound power.

(A) Monitoring equipment specifications. The sound meter or alternative sound measurement system used shall meet all appropriate industry standards and specifications. Each monitoring site shall include:

(1) Installation of an anemometer and other equipment or sensors capable of gathering and recording sound-meter-level wind speed, wind direction, temperature, and precipitation; and

(2) Installation of enhanced wind screens capable of significantly reducing or eliminating wind-induced noise contamination over the sound meter.

(B) Determination of background/ambient sound levels. Activities conducted to determine background sound levels shall conform to the following methodologies:

(1) A CPG holder shall conduct turbine shutdowns in accordance with the requirements of its CPG, which shall specify the minimum number and duration of turbine shutdowns during each month of the post-construction sound monitoring program. The CPG shall also specify the number of required turbine shutdowns to occur during nighttime hours.
(2) A CPG holder shall place, where feasible, both primary and secondary sound meters or alternative sound measurement systems at the sound monitoring location, consistent with appropriate industry standards and specifications.

(C) Additional Monitoring Methodology: Additional monitoring methodologies may be identified and determined on a case-by-case basis as part of the Board's review of a proposed facility pursuant to Section 248.

5.707 Analysis of Sound Monitoring Data

Methodologies, protocols, and/or practices for analyzing recorded sound levels at a facility and/or post-construction monitoring sites shall be identified and determined on a case-by-case basis as part of the Board review of any proposed facility under 30 V.S.A. § 248.

5.708 Response to Complaints

Complaints raised by residents located near the wind generation facility shall be responded to in a manner consistent with the complaint response procedure(s) issued by the Vermont Department of Public Service pursuant to Section 5c of Public Act 130 (2016 Vt., Adj. Sess.)